



January 29, 2018

East Chicago Sanitary District
5201 Indianapolis
East Chicago, IN 46312

Work Order No.: 18A0340

Re: Industrial #901 010818

Dear Nickie Geros:

Microbac Laboratories, Inc. - Chicagoland Division received 2 sample(s) on 1/9/2018 11:20:00AM for the analyses presented in the following report as Work Order 18A0340.

The enclosed results were obtained from and are applicable to the sample(s) as received at the laboratory. All sample results are reported on an "as received" basis unless otherwise noted.

All data included in this report have been reviewed and meet the applicable project specific and certification specific requirements, unless otherwise noted. A qualifications page is included in this report and lists the programs under which Microbac maintains certification.

This report has been paginated in its entirety and shall not be reproduced except in full, without the written approval of Microbac Laboratories.

We appreciate the opportunity to service your analytical needs. If you have any questions, please contact your project manager. For any feedback, please contact Donna Ruokonen, Managing Director, at donna.ruokonen@microbac.com.

Sincerely,
Microbac Laboratories, Inc.

A handwritten signature in black ink, appearing to read "D. Bryant", with a long, sweeping horizontal line extending to the right.

Dave Bryant
Project Manager

[Microbac Laboratories, Inc.](#)

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**WORK ORDER SAMPLE SUMMARY****Date:** *Monday, January 29, 2018***Client:** East Chicago Sanitary District**Project:** Industrial #901 010818**Lab Order:** 18A0340

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
18A0340-01	#901		01/08/2018 08:45	1/9/2018 11:20:00AM
18A0340-02	#901		01/08/2018 08:45	1/9/2018 11:20:00AM

Samples Subcontracted To: Microbac - BLT

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
18A0340-02	#901		01/08/2018 08:45	1/9/2018 11:20:00AM

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CASE NARRATIVE**Date:** Monday, January 29, 2018**Client:** East Chicago Sanitary District**Project:** Industrial #901 010818**Lab Order:** 18A0340

The Total Suspended Solid method residue requirement of 2.5 mg were not met for the following sample(s). Due to sample matrix, additional sample volume could not be filtered.

<u>Laboratory ID</u>	<u>Sample Name</u>
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18A0340-01	#901
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The Matrix Spike and Matrix Spike Duplicate failed the accuracy criteria for phenol with a low bias. The precision criteria were met. A Post Digestion Spike was performed and the acceptance criteria was not met, indicating sample matrix interference. The following sample was spiked:

<u>Laboratory ID</u>	<u>Sample Name</u>
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18A0340-01	#901
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Cyanide 1677 Analysis

The cyanide 1677 analysis was subcontracted to Microbac Baltimore Division, Baltimore MD. Their results are incorporated into this report.



Analytical Results

Date: Monday, January 29, 2018

Client: East Chicago Sanitary District

Client Project: Industrial #901 010818

Client Sample ID: #901

Sample Description:

Matrix: Aqueous

Work Order/ID: 18A0340-01

Sampled: 01/08/2018 8:45

Received: 01/09/2018 11:20

Analyses	Certs	AT	Result	Limit	MDL	RL	Qual	Units	DF	Analyzed
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Method: EPA 200.7 Rev 4.4

Analyst: BTM

Total Recoverable Metals by ICP

Prep Date/Time: 01/10/2018 07:36

Arsenic	dijl	A	0.0085	0.5	0.0035	0.010	J	mg/L	1	01/10/2018 12:04
Chromium	dijl	A	ND	0.282	0.00050	0.0030		mg/L	1	01/10/2018 12:04
Copper	dijl	A	0.0012	0.17	0.00040	0.010	J	mg/L	1	01/10/2018 12:04
Lead	dijl	A	ND	0.224	0.0032	0.0075		mg/L	1	01/10/2018 12:04
Molybdenum	dijl	A	0.058	0.2	0.0016	0.020		mg/L	1	01/10/2018 12:04
Nickel	dijl	A	0.0086	0.39	0.00080	0.010	J	mg/L	1	01/10/2018 12:04
Thallium	dijl	A	ND	4.3	0.0037	0.050		mg/L	1	01/10/2018 12:04
Zinc	dijl	A	0.062	5.5	0.0029	0.020		mg/L	1	01/10/2018 12:04

Method: EPA 245.1 Rev 3.0

Analyst: BTM

Total Mercury by CVAA

Prep Date/Time: 01/11/2018 11:26

Mercury	dilo	A	0.00026	0.00020	0.000020	0.00020	*	mg/L	1	01/11/2018 14:28
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Method: SM 4500-CI B-1997

Analyst: EF

Chloride

Prep Date/Time: 01/12/2018 14:35

Chloride	di	A	2.5	0	1.0	1.0		mg/L	1	01/12/2018 14:35
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Method: EPA 410.4 Rev 2.0

Analyst: EF

Chemical Oxygen Demand

Prep Date/Time: 01/15/2018 10:40

Chemical Oxygen Demand	dio	A	420	250	9.3	10	*	mg/L	1	01/15/2018 14:42
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Method: SM 4500-F C-1997 MOD

Analyst: EF

Fluoride

Prep Date/Time: 01/15/2018 13:02

Fluoride	dijo	A	1.1	2.9	0.010	0.10		mg/L	1	01/15/2018 13:02
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Method: EPA 350.1 Rev 2.0

Analyst: ABG

Nitrogen, Ammonia as N

Prep Date/Time: 01/12/2018 11:50

Nitrogen, Ammonia (As N)	dio	A	29	77	0.54	1.0		mg/L	10	01/12/2018 14:07
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Method: EPA 365.1 Rev 2.0

Analyst: lachat3

Total Phosphorus as P

Prep Date/Time: 01/11/2018 10:20

Phosphorus, Total (As P)	dijo	A	0.252	5.5	0.0450	0.200		mg/L	1	01/11/2018 14:43
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Method: EPA 420.4 Rev 1.0

Analyst: GRIEFF

Total Phenolics

Prep Date/Time: 01/10/2018 12:12

Phenolics, Total Recoverable	diljo	A	0.040	0.7	0.0060	0.010		mg/L	1	01/10/2018 14:46
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Method: SM 4500 SO4 E-1997

Analyst: GRIEFF

Sulfate, Turbidimetric

Prep Date/Time: 01/12/2018 10:59

Sulfate		A	270	0	4.7	100		mg/L	10	01/12/2018 15:42
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Method: SM 2540 C-1997

Analyst: TMG

Total Dissolved Solids

Prep Date/Time: 01/09/2018 12:53

Total Dissolved Solids (Residue, Filterable)	dijo	A	850	0	20	20		mg/L	1	01/09/2018 12:56
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Method: SM 2540 D-1997

Analyst: AJR

Total Suspended Solids

Prep Date/Time: 01/10/2018 05:48

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Analytical Results

Date: Monday, January 29, 2018

Client: East Chicago Sanitary District

Client Project: Industrial #901 010818

Client Sample ID: #901

Sample Description:

Matrix: Aqueous

Work Order/ID: 18A0340-01

Sampled: 01/08/2018 8:45

Received: 01/09/2018 11:20

Analyses	Certs	AT	Result	Limit	MDL	RL	Qual	Units	DF	Analyzed
Method: SM 2540 D-1997										Analyst: AJR
Total Suspended Solids										Prep Date/Time: 01/10/2018 05:48
Total Suspended Solids	dijo	A	73	100	1.0	1.0		mg/L	1	01/10/2018 5:48

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Analytical Results

Date: Monday, January 29, 2018

Client: East Chicago Sanitary District

Client Project: Industrial #901 010818

Client Sample ID: #901

Sample Description:

Matrix: Aqueous

Work Order/ID: 18A0340-02

Sampled: 01/08/2018 8:45

Received: 01/09/2018 11:20

Analyses	Certs	AT	Result	Limit	MDL	RL	Qual	Units	DF	Analyzed
Method: EPA 1664B Analyst: AJR										
Oil & Grease (HEM) by SPE Prep Date/Time: 01/10/2018 05:14										
Oil & Grease (HEM)	dij	A	1.5	50	1.4	5.0	J	mg/L	1	01/10/2018 5:14
Method: EPA OIA-1677 Analyst: ANC										
Available Cyanide by Ligand Exchange Prep Date/Time: 01/15/2018 07:42										
Available Cyanide	FN	2444	0.144	0.003	0.00500	0.0200	*	mg/L	1	01/23/2018 14:20

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FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

B = Detected in the associated method Blank at a concentration above the routine RL
 b- = Detected in the associated method Blank at a concentration greater than 2.2 times the MDL
 b* = Detected in the associated method Blank at a concentration greater than half the RL
 CFU = Colony forming units
 D = Dilution performed on sample
 DF = Dilution Factor
 g = Gram
 E = Value above quantitation range
 H = Analyte was prepared and/or analyzed outside of the analytical method holding time
 I = Matrix Interference
 J = Analyte concentration detected between RL and MDL (Metals / Organics)
 LOD = Limit of Detection
 LOQ = Limit of Quantitation
 m3 = Meters cubed
 MDL = Method Detection Limit
 mg/Kg = Milligrams per Kilogram (ppm)
 mg/L = Milligrams per Liter (ppm)
 NA = Not Analyzed
 ND = Not Detected at the Reporting Limit (or the Method Detection Limit, if used)
 NR = Not Recovered
 R = RPD outside accepted recovery limits
 RL = Reporting Limit
 S = Spike recovery outside recovery limits
 Surr = Surrogate
 U = Undetected
 > = Greater than
 < = Less than
 % = Percent
 * = Result exceeds project specific limits

ANALYTE TYPES: (AT)

A,B = Target Analyte
 I = Internal Standard
 M = Summation Analyte
 S = Surrogate
 T = Tentatively Identified Compound (TIC, concentration estimated)

QC SAMPLE IDENTIFICATIONS

BLK = Method Blank	ICSA = Interference Check Standard "A"
DUP = Method Duplicate	ICSAB = Interference Check Standard "AB"
BS = Method Blank Spike	BSD = Method Blank Spike Duplicate
MS = Matrix Spike	MSD = Matrix Spike Duplicate
ICB = Initial Calibration Blank	ICV = Initial Calibration Verification
CCB = Continuing Calibration Blank	CCV = Continuing Calibration Verification
CRL = Client Required Reporting Limit	OPR = Ongoing Precision and Recovery Standard
PDS = Post Digestion Spike	SD = Serial Dilution
QCS = Quality Control Standard	

CERTIFICATIONS (Certs)

Below is a list of certifications maintained by the Microbac Merrillville Laboratory. All data included in this report has been reviewed for and meets all project specific and quality control requirements of the applicable accreditation, unless otherwise noted. Complete lists of individual analytes pursuant to each certification below are available upon request.

- ^d Illinois EPA drinking water, wastewater and solid waste analysis (#200064)
- ^F Florida - NELAC (#E871126)
- ⁱ Kansas Dept Health & Env. NELAP (#E-10397)
- ^j Kentucky Wastewater Laboratory Certification Program (#90147)
- ^l North Carolina DENR NPDES effluent, surface water (#597)
- ^N Commonwealth of Virginia (#460285)
 - o Virginia Department of General Services Division of Consolidated Laboratory Services (#7990)



COOLER INSPECTION

Client Name: East Chicago Sanitary District

Work Order Number: 18A0340

Checklist completed by: 1/9/2018 11:32:00AM | Samantha Paulus

Date: Monday, January 29, 2018

Date/Time Received: 01/09/2018 11:20

Received by: Samantha Paulus

Reviewed by: 1/9/2018 | SD

Carrier Name: Microbac

Cooler ID: Default Cooler

Container/Temp Blank Temperature: 0.6° C

After-Hour Arrival?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>	
Shipping container/cooler in good condition?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample containers?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
COC present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included sufficient client identification?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included sufficient sample collector information?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included a sample description?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC agrees with sample labels?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC identified the appropriate matrix?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included date of collection?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included time of collection?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC identified the appropriate number of containers?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Samples in proper container/bottle?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Sample containers intact?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
All samples received within holding time?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
If the samples are preserved, are the preservatives identified?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	

If No, adjusted by? _____

COC included the requested analyses?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC signed when relinquished and received?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Samples received on ice?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Samples properly preserved?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Voa vials for aqueous samples have zero headspace?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>

Cooler Comments: _____

ANY "NO" EVALUATION (excluding After-Hour Receipt) REQUIRES CLIENT NOTIFICATION.

Sample ID	Client Sample ID	Comments
18A0340-01	#901	
18A0340-02	#901	

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SUBCONTRACT ORDER
18A0340

SENDING LABORATORY:

Microbac Laboratories, Inc. - Chicagoland
250 West 84th Drive
Merrillville, IN 46410
Phone: 219.769.8378
Project Manager: Dave Bryant

RECEIVING LABORATORY:

Microbac - BLT
2101 Van Deman Street
Baltimore, MD 21224-6697
Phone: (410) 633-1800

Project Info:

Project Name: ECSD Industrial Monitoring
Project No: Industrial Monitoring #901

Client:

Project Type:

Project Location:

East Chicago Sanitary District - East Chicago, IN

ENV-DrinkingWater

Indiana

Report TAT: 4

Due: 01/15/2018 23:59

Sample ID: 18A0340-02

Matrix: Aqueous

Sampled: 01/08/2018 08:45

Analysis	Method	Analysis Due	Expires
CN_1677_SUB Cyanide, Available	EPA OIA-1677 0 --	01/15/2018 23:59	01/22/2018 08:45

Containers Supplied:

B: 500 mL amber glass, Preserved - NaOH

Released By

Date

Received By

Date

Released By

Date

Received By

Date